Appliance Standards Awareness Project

March 8, 2021

Mr. Bryan Berringer
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Building Technologies Office, EE-5B
1000 Independence Avenue SW
Washington, DC 20585

RE: Docket Number EERE–2019–BT–STD–0035/RIN 1904-AE66: Request for Information for Energy Conservation Standards for Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps

Dear Mr. Berringer:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP) on the request for information (RFI) for energy conservation standards for packaged terminal air conditioners (PTACs) and packaged terminal heat pumps (PTHPs). 85 Fed. Reg. 82952 (December 21, 2020). We appreciate the opportunity to provide input to the Department.

DOE should evaluate potential amended standard levels based on metrics that reflect annual energy consumption and capture low-temperature heating performance. The current test procedure for PTACs and PTHPs measures only full-load efficiency. Furthermore, for PTHPs, the current test procedure does not capture heating performance at low ambient temperatures. In our comments on the December 2020 test procedures RFI for PTACs and PTHPs, we encouraged DOE to shift to efficiency metrics that reflect annual energy consumption, which would capture the benefits of technologies that can significantly improve part-load performance.[1] We also encouraged DOE to capture performance at lower ambient temperatures, including defrost performance, in the heating efficiency metric. These test procedure changes would result in changes to efficiency ratings that would improve representativeness and provide better information to consumers in making purchasing decisions.

We encourage DOE to evaluate the range of technology options identified in the RFI. In Tables II.2 and II.3 of the RFI, DOE identifies technology options that may increase efficiency at both full-load and part-load conditions and technology options that may increase efficiency at only part-load conditions, respectively.[2] Many of these technologies were not analyzed for the 2015 final rule, which suggests that significantly greater energy savings may be possible than the savings associated with the "max-tech" levels in the previous final rule. In particular, the technology options that can increase part-load efficiency such as variable-speed compressors, variable-speed fans, and electronic expansion valves have the potential to provide large savings. In addition, we understand that typical PTACs and PTHPs use R410A as the refrigerant and that alternatives to R410A such as R32, R452B, and R454B can improve efficiency by at least 5%.[3]

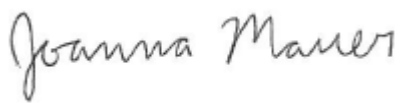
[1] https://www.regulations.gov/comment/EERE-2019-BT-TP-0027-0004.
[2] 85 Fed. Reg. 82958.
[3] https://www.aceee.org/files/proceedings/2016/data/papers/3_406.pdf.

We encourage DOE to consider improvements to heating performance at low temperatures as technology options. As we described in our comments on the test procedures RFI, we understand that many PTHPs may be designed to shut off the heat pump cycle and switch to electric resistance heating at an outdoor temperature of around 40°F.[4] Design changes—such as adding defrost capability—that allow a PTHP to continue to use the heat pump cycle at lower ambient temperatures could provide significant energy savings. We also encourage DOE to consider improved defrost control strategies as a technology option.

DOE should reevaluate the assumptions for average lifetime. The RFI explains that in the 2015 final rule, DOE used a mean lifetime of 7 years for lodging applications (which represented 70% of the market) based on the assumption that the average lifetime of PTACs and PTHPs is similar to the renovation cycle at hotels, which occur every 7 years on average.[5] We are concerned that this assumption may result in underestimating the average lifetime of PTACs and PTHPs. We understand that PTACs are typically used in small-to-medium sized hotels (rather than large hotels), which may not be renovated as often as every 7 years. Furthermore, we understand that hotel renovations may not imply replacing PTACs/PTHPs; since PTACs and PTHPs are single-package units that are installed through the wall, their replacement does not need to be tied to a major renovation.

Thank you for considering these comments.

Sincerely,



Joanna Mauer
Technical Advocacy Manager

[4] https://www.regulations.gov/comment/EERE-2019-BT-TP-0027-0004.
[5] 85 Fed. Reg. 82963.